

ABSTRACT

An organic field effect transistor (FET) is described with an active dielectric layer comprising a low-temperature cured dielectric film of a liquid-deposited silsesquioxane precursor. The dielectric film comprises a silsesquioxane having a dielectric constant of greater than 2. The silsesquioxane dielectric film is advantageously prepared by curing oligomers having alkyl(methyl) and/or alkyl(methyl) pendant groups. The invention also embraces a process for making an organic FET comprising providing a substrate suitable for an organic FET; applying a liquid-phase solution of silsesquioxane precursors over the surface of the substrate; and curing the solution to form a silsesquioxane active dielectric layer. The organic FET thus produced has a high-dielectric, silsesquioxane film with a dielectric constant of greater than about 2, and advantageously, the substrate comprises an indium-tin oxide coated plastic substrate.